Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Harrisburg

Manual of Instruction

COURSE 14

INCREASING VEGETABLE PRODUCTION

(COMMERCIAL)

Rural War Production Training Program

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Prepared under the authority of the State Board for Vocational Education by the Department of Rural Education, The Pennsylvania State College

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(COMMERCIAL)

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PREFACE

Course 14, Increasing Vegetable Production (Commercial), is one of a series of courses which have been prepared in the "Food for Victory" program. The objective has been to set forth in brief form the phases of the commercial vegetable growing industry considered pertinent to the immediate problem of Increasing Vegetable Production (Commercial) in Pennsylvania.

This manual is organized into five sections:

I. SUGGESTED COURSE CALENDAR
II. INTRODUCTION
III. SUGGESTED LESSON OUTLINES
IV. SUGGESTED REFERENCE MATERIAL
    Books (A)
    Bulletins and Circulars (B)
    Visual Aids (C)
V. SUGGESTED APPROVED PRACTICES WHICH SHOULD DEVELOP FROM THE COURSE

The manual was prepared by Russell B. Dickerson, Itinerant Teacher-Trainer, Specialist in Young and Adult Farmer Instruction, Department of Rural Education, The Pennsylvania State College. The preparation was directed by H. C. Fetterolf, Chief, Agricultural Education, State Department of Public Instruction; and Henry S. Brunner, Head, Department of Rural Education, The Pennsylvania State College.

Special recognition is given to Dr. Warren B. Mack, Head, Department of Horticulture, The Pennsylvania State College, for invaluable assistance and guidance in setting up the suggested lesson outlines and in deciding upon the most current references pertinent to "Increasing Vegetable Production (Commercial)."

I. SUGGESTED LESSON OUTLINES

Lesson Number	Name of Job	Date of Meeting
1	Increasing Vegetable Production (Commercial) in War-Time	
2	Selecting Suitable Soil for Commercial Vegetable Production	
3	Maintaining Satisfactory Fertility and Production of Soil	
4	Selecting Suitable Varieties of Quality Seeds and Plants	
5	Growing and Transplanting Vegetable Seedlings and Plants	
6	Field Planting of Vegetable Seeds and Plants	
7	Controlling Insects and Diseases of Vegetable Crops	
8	Following Proper Cultural Practices in Commercial Vegetable Production	
9	Harvesting, Grading, and Packing Vegetables	
10	Marketing and Storing Vegetables Commercially	

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II. INTRODUCTION

This manual was prepared as a guide to teachers and supervisors in conducting instruction with young and adult farmers in the OSYA "Food for Victory" program. It is designed to facilitate more effective preparation by the teachers undertaking to meet the emergency need through commodity courses.

The ten (10) suggested lesson topics or jobs were selected after careful analysis of the whole field of commercial vegetable production, in conference with Dr. Warren B. Mack. The lesson outlines are purely suggestive and it is expected that each lesson will be modified to meet local conditions.

In many instances jobs other than the ten included herein will be considered important enough in certain sections of the commonwealth to be included along with, or instead of, some of those listed. It is expected also that more than one meeting will be necessary to give satisfactory instruction in some jobs.

The aims and the problems for study and discussion set up in each of the ten lesson outlines are considered applicable to the respective jobs but they are by no means considered all-inclusive. If any or all of the suggested problems for study and discussion are incorporated into a similar course of study the suggested references will be found helpful to the busy teacher. They are offered for the express purpose of bringing teacher efficiency to its best.

The reference materials suggested on pp. 20-23 are considered pertinent to the immediate problem of Increasing Vegetable Production (Commercial). It is advised that at least one copy of each should be available for easy reference. It is assumed that a variety of references that are pertinent to Increasing Vegetable Production, are already on hand in most schools. They will probably include texts, bulletins, charts, film strips and others, and they may furnish a large part of the reference material needed. It is important however, to use the most current references for approved practices in meeting emergency problems. The bulletins of The Pennsylvania Experiment Station and Circulars of The Agricultural Extension Service are prepared for Pennsylvania conditions and they generally are the most reliable sources available.

For the convenience of the teacher, the suggested reference materials on pp. 20-23 are given by key designation as follows: Books (A), Bulletins and Circulars (B), and Visual Aids (C). In preparing a lesson on any one job, the teacher will find specific references to the different problems suggested. For example, (1) if the reference is A-1, p. 7, it refers to material on page 7 of the first book

listed, the material found there is considered pertinent to the problem suggested; (2) if the reference is B-3, it refers to bulletin No. 3 on the list and implies that the content of the entire bulletin is pertinent to the problem; (3) if C-6 is given as a reference it will refer to item No. 6 in the Visual Aids list.

The suggested approved practices which should develop from the course are set forth on p. 24 as guides to the teacher. During each lesson certain conclusions should be reached which should result in the adoption of approved practices by individual farmers. These will constitute the basis for the program of follow-up instruction.

Teachers who plan to organize and conduct a course in Increasing Vegetable Production (Commercial) are urged to follow the suggestions given in another manual of instruction in the series entitled, "Suggestions to Teachers and Supervisors for the Development and Conduct of Agricultural Commodity Courses".[1]

The suggestions set forth in that manual were prepared for the purpose of aiding individuals in organizing and conducting Agricultural Commodity Courses in the Rural War Production Training program. The manual includes the following sections:

I. Objectives of Courses in the Increased Production of Farm Commodities.
II. Things to Do Before Organizing a Commodity Course.
III. Form for Surveying Out-of-School Rural and Non-rural Persons.
IV. Suggested Teacher Preparation.
V. A Suggested Teaching Plan Using the Conference Procedure.
VI. The Importance of Current References.
VII. Providing Follow-up of Instruction.

[1] Rural War Production Training, State Department of Public Instruction, Harrisburg, Pa.

III. SUGGESTED LESSON OUTLINES

JOB 1. INCREASING VEGETABLE PRODUCTION (COMMERCIAL) IN WAR-TIME

A. Teaching aims—To develop the ability of the farmer—
   1. To meet the demands for large quantities of vegetables.
   2. To choose adapted vegetable crops for the home farm.
   3. To produce vegetables commercially.

B. References for this lesson—(see key list on pp. 20-23)
   1. (A)—1
   2. (B)—1, 2, 3, 4, 5, 69, 71
   3. (C)—1

C. Suggested problems for study and discussion—
   1. The need for large quantities of vegetables. B-1; B-2; B-3; B-4
      a. Fresh vegetables for market
      b. Fresh vegetables for processing, canning, freezing, dehydrating.
   2. Surveying the commercial vegetable production industry. A-1, pp. 524-530; B-1; B-2; B-3; B-4
      a. Total acreages of the several commercially produced vegetables in the U. S., in Pa., and locally.
      b. Goals for commercial vegetable production in 1943
      c. Trends in commercial vegetable production.
         (1) Market demands
         (2) Labor supplies
   3. Adapting commercial vegetable production to this area. A-1, pp. 9-14
      a. Suitable soil
      b. Suitable climate
      c. Vegetable crops adapted to this area
      b. Availability of labor
      e. Markets for vegetable crops in this area
      f. Transportation facilities
   4. Financing the commercial vegetable enterprise. B-5
      a. Secure credit and credit information from—
         (1) The local bank
         (2) The production credit association
         (3) The farm security administration
         (4) The commodity credit association

JOB 2. SELECTING SUITABLE SOIL FOR COMMERCIAL VEGETABLE PRODUCTION

A. Teaching aims—To develop the ability of the farmer—

1. To utilize the soils on his farm that are suitable to the commercial production of adapted vegetable crops.
2. To adapt vegetable crops to the general crop rotation for efficient production.

B. References for this lesson—(see key list on pp. 20-23)

1. (A)—1, 4
2. (B)—See bulletins listed for specific crops
3. (C)

C. Suggested problems for study and discussion—

1. Types of soils adapted to vegetable production. A-1, p. 13
   a. Sandy soils
   b. Silt and clay loams
   c. Muck soils
2. Appraising the soil. A-1, p. 14
   a. Texture and structure are important
   b. Presence or absence of organic matter or nutrients
   c. Nature and condition of the subsoil
   d. Depth of furrow slice
   e. Drainage
3. Considering the desirability and the practicability of growing vegetables in the general crop rotation. A-4, pp. 406-430
   a. Availability of labor—seasonal and otherwise
   b. Using vegetable crops as a cash crop
      (1) Available markets
   c. Additional machinery and equipment needed
      (1) Availability

JOB 3. MAINTAINING SATISFACTORY FERTILITY AND PRODUCTION OF SOIL

A. Teaching aims—To develop the ability of the farmer—
   1. To meet the soil fertility needs for economical vegetable production.
   2. To maintain organic matter and plant nutrients for efficient growth of vegetable crops.

B. References for this lesson—(see key list on pp. 20-23)
   1. (A)—1, 2, 3, 4
   2. (B)—6, 7, 8, 12, 13, 14, 52
   3. (C)—2, 4, 7, 8, 9, 10, 11, 12, 13

C. Suggested problems for study and discussion—
   1. An abundance of soil organic matter is important. A-1, pp. 73-76; A-4, pp. 347-360; A-4, pp. 929-939
      a. Effects of soil organic matter
         (1) Increases the absorptive capacity
         (2) Improves the physical condition
         (3) Stimulates biochemical activity
         (4) Supplies nutrients
      b. Supplying organic matter. A-2, Ch. 13; B-12; B-13; A-4, pp. 462-468
   2. Animal manures are important. A-1, pp. 76-80; A-2, pp. 215-219; C-13; A-4, pp. 445-461
      a. Composition of manure
      b. Reinforcing manure
      c. Characteristics of manures
      d. Care of manures
      e. Composting manure
      f. Applying manures
         (1) Time of application
         (2) Method of application
         (3) Rate of application
   3. Green manures are essential as sources of organic matter. A-4, pp. 431-444; A-1, pp. 80-91; A-2, pp. 148-152; B-7
      a. Extent and economy of green manures
      b. Effects of green manures
      c. Choice of green manure crops
         (1) Leguminous green manure crops
         (2) Non-leguminous green manure crops
            (a) Domestic rye grass. B-6
         (3) Mixtures as green manures
         (4) Weeds as green manures
      d. Planting green manures. B-6; B-7
         (1) Inoculation of green manure crops
         (2) Fertilizing green manure crops
      e. Plowing green manures
         (1) Crop residues

4. "Synthetic" manure. A-2, p. 220
5. Fertilizing vegetable crops. B-8; C-2; C-4; C-12; B-14; A-4, pp. 773-776; A-4, pp. 469-486; A-1, p. 508; B-52
   a. Miscellaneous fruit and seed bearing crops
   b. Leafy crops
   c. Root crops
   d. Bulb crops
   e. Perennial crops
6. Using lime. A-1, p. 92; A-2, Ch. 17; A-1, p. 508; C-7; C-8; C-9; C-10; C-11; A-4, pp. 563-580
   a. Acidity tolerance of vegetable crops. A-1, p. 93; A-2, p. 197
      (1) Sampling and testing the soil.
   b. Forms of lime. A-1, p. 94; A-2, pp. 237-245
   c. Applying lime. A-1, p. 95; A-2, pp. 245-252
      (1) Time and method
7. The functions of fertilizers. A-1, pp. 95-97; A-4, pp. 493-506
   a. Using nitrogen. A-1, p. 97; A-2, Ch. 21; A-4, pp. 361-376
   b. Using phosphorus. A-1, p. 99; A-2, Ch. 22; A-4, pp. 377-396
   c. Using potassium. A-1, p. 100; A-2, Ch. 23; A-4, pp. 397-405
   d. Using other fertilizing elements. A-1, p. 101
8. Supplying fertilizer materials. A-4, pp. 506-519
   a. Nitrogen carriers. A-1, p. 102
   b. Phosphorus carriers. A-1, p. 104
   c. Potassium carriers. A-1, p. 104
9. Using complete fertilizers. A-1, p. 105; A-2, Ch. 24; A-4, p. 522-545
   a. Fertilizer formulae. A-1, p. 105
   b. Home mixing of fertilizers. A-1, p. 106; A-3, p. 113
10. Applying fertilizers. A-1, pp. 108-112; A-2, Ch. 26; C-2; A-4, pp. 546-562
    a. Rates of application
    b. Methods of applying fertilizers
       (1) Broadcast applications
       (2) Row applications
       (3) Band placement
       (4) Plowed under
11. Response of crops to fertilizer elements. A-2, p. 326
12. Some typical fertility programs. A-1, pp. 112-114; A-4, pp. 558-562
    a. On local farms
    b. On intensive farming
    c. On muck soils

JOB 4. SELECTING SUITABLE VARIETIES OF QUALITY SEEDS AND PLANTS

A. Teaching aims—To develop the ability of the farmer—
   1. To select seeds of vegetable varieties that are adapted and desirable.
   2. To purchase good seed from reliable sources.
   3. To secure vegetable plants of adapted varieties from reliable sources.

B. References for this lesson—(see key list on pp. 20-23)
   1. (A)—1
   2. (B)—9, 10, 11, 75
   3. (C)—3, 4, 5, 6

C. Suggested problems for study and discussion—
   1. Characteristics of good seed. A-1, pp. 15-18
      a. High vitality is important
      b. Germination testing is essential
      c. The practical longevity of vegetable seeds should be considered.
      d. The size and weight of seeds is important
      e. Good breeding in seeds implies excellence
      f. Seeds must be free from disease for high yield and quality.
      g. The kinds and varieties of seeds much be adapted to the local seasons, usefulness, and market requirements.
   2. Buying vegetable seeds. A-1, p. 18
      a. Vegetable varieties for Pennsylvania. B-9; A-1, pp. 503-505; B-10; B-75
      b. Disease-resistant varieties of vegetables. B-11
      c. Purchase seed from reliable seed growers and distributors. C-4
   3. Treating vegetable seeds. A-1, pp. 22-23
      a. Hot water treatment. A-1, p. 23
      b. Corrosive sublimate or bichloride of mercury treatment. A-1, p. 24
      c. Calomel treatment for celery and cabbage seed. A-1, p. 25
      d. Dry or dust treatments. A-1, p. 25
   4. Securing vegetable plants
      a. Purchase from local greenhouses or growers
      b. Purchase from reliable southern growers
      c. Produce own—the best source
         (1) Greenhouses
         (2) Hotbeds and cold frames

JOB 5. GROWING AND TRANSPLANTING VEGETABLE SEEDLINGS AND PLANTS

A. Teaching aims—To develop the ability of the farmer—

1. To plant vegetable seeds in accordance with approved practices.
2. To produce plants for transplanting efficiently.
3. To transplant vegetable plants in accordance with approved practices.

B. References for this lesson—(see key list on pp. 20-23)

1. (A)—1
2. (B)—15, 16, 17
3. (C)

C. Suggested problems for study and discussion—

1. Using hot beds. A-1, pp. 28-32; B-17
   a. Location and arrangement
   b. Preparing the pit
   c. Constructing the frame
   d. Securing the sash
      (1) Using glass substitutes
2. Providing heat. A-1, pp. 32-36
   a. Manure and its preparation
   b. Flue heated hotbed
   c. Hot water and steam heated hotbeds
   d. Electrically heated hotbeds.
3. Providing plant houses, A-1, pp. 36-38; B-15; B-16
   a. Constructing
   b. Heating
4. Providing coldframes. A-1, pp. 38-42; B-17
   a. Uses
   b. Location, water supply, and soil
   c. Constructing
   d. Protecting frames from cold
      (1) Muslin covering
      (2) Straw mats, straw, and other coverings
   e. Waterproofing the covers

5. Providing soil for early vegetable seeds. A-1, pp. 43-45; B-17
   a. Preparation of soil
   b. Soil disinfection is important
6. Providing containers for plant growing. A-1, p. 45: B-17
   a. Flats or plant boxes
   b. Pots and bands
7. Sowing the seed. A-1, pp. 46-50; B-17
   a. Seed sowing schedule. A-1, p. 47
   b. Preparing the soil
   c. Sowing the seed
8. Care after sowing. A-1, p. 50
   a. Damping-off
9. Transplanting the seedlings. A-1, pp. 53-56; B-17
   a. Reasons for transplanting
   b. Procedure in transplanting
   c. Care after transplanting
   d. Producing seedlings in sand culture. A-1, p. 58
   e. Blocking is applicable to the growing of long, strong plants.
10. Caring for the plants. A-1, pp. 56-59
   a. Looking after temperatures
   b. Providing water
   c. Providing ventilation
   d. Hardening is essential.
   e. Protecting plants from insects and diseases

JOB 6. FIELD PLANTING OF VEGETABLE SEEDS AND PLANTS

A. Teaching aims—To develop the ability of the farmer—
   1. To plant vegetable seeds in the field in accordance with approved practices.
   2. To transplant vegetable plants in the field in accordance with approved practices.

B. References for this lesson—(see key list on pp. 20-23)
   1. (A)—1
   2. (B)—See bulletins listed for specific crops.
   3. (C)—

C. Suggested problems for study and discussion—
   1. Preparing the land. A-1, pp. 115-117
      a. Timeliness in preparing soil is important
      b. Choice of plows and harrows is important
   2. Time and depth of plowing. A-1, pp. 118-120
      a. Procedure after plowing
      b. Degree of soil preparation
      c. Adapting soil preparation to the crop and the season
      d. Control weeds by thorough soil preparation
      e. Prepare soil efficiently
   3. Sowing seed in the open field
      a. Requirements for germination. A-1, pp. 120-122
         (1) Oxygen
         (2) Proper temperature
         (3) Moisture
      b. When to sow. A-1, p. 122
      c. Quantity of seed to sow. A-1, p. 123; A-1, pp. 506-507
      d. Depth of sowing. A-1, p. 123
      e. Broadcasting or drilling the seed. A-1, pp. 124-127
      f. Firming the soil. A-1, p. 127
   4. Transplanting into the open field. A-1, pp. 127-132
      a. Reasons for transplanting
      b. Severity of transplanting
      c. Preparing plants for transplanting
      d. When to plant
      e. Using markers
      f. Depth to transplant
      g. Transplanting by hand
      h. Transplanting by machine
      i. Usual number of plants set per acre. A-1, p. 505; A-1, p. 510
   5. Caring for the plants after transplanting. A-1, p. 132

JOB 7. CONTROLLING INSECTS AND DISEASES OF VEGETABLE CROPS

A. Teaching aims—To develop the ability of the farmer—
   1. To control insects attacking vegetable crops.
   2. To control diseases affecting vegetable crops.

B. References for this lesson—(see key list on pp. 20-23)
   1. (A)—1, 5
   2. (B)—18, 19, 20, 21, 22, 23, 24, 25, 45, 46
   3. (C)—14, 15, 16, 17, 18, 19, 20, 21, 22

C. Suggested problems for study and discussion—
   1. Control is necessary. A-1, p. 159; B-20, p. 1
   2. Insects and their attacks. A-1, p. 159
      a. Chewing insects b. Sucking insects
   3. Diseases and their causes. A-1, p. 160
      a. Organisms
      b. Unfavorable conditions for growing
   4. Using preventive and protective measures. A-1, pp. 160-165; B-18, pp. 1-3
      a. Planting clean seeds and plants
         (1) Treating seed for seed-borne diseases. A-1, pp. 22-27; B-21
      b. Planting resistant varieties
      c. Rotating crops
      d. Using sanitation
      e. Using trap crops and baiting
      f. Using mechanical protection
      g. Using chemical protection
      h. Providing favorable environment
   5. Insecticides and their use. A-1, pp. 166-169; B-18, p. 3; B-20
      a. Formulae for the preparation of insecticides. B-18, pp. 3-8
   6. Fungicides and their use. A-1, pp. 169-172; B-19; B-20
   7. Spraying and dusting. A-1, pp. 172-177; B-18, pp. 8-10; B-19; B-20; B-46
      a. Spraying equipment. B-18, p. 8
      b. Dusting equipment. B-18, p. 9
   8. General vegetable crop insects. A-1, pp. 177-181; B-18, pp. 10-21; B-20; A-5, Chs. 11, 12, 13
      a. Insects attacking particular vegetable crops. B-18, pp. 21-37; B-25
   9. General vegetable crop diseases. A-1, p. 181; B-19; B-20
      a. Diseases affecting particular vegetable crops. B-22; B-23; B-24; B-45

JOB 8. FOLLOWING PROPER CULTURAL PRACTICES IN COMMERCIAL VEGETABLE PRODUCTION

A. Teaching aims—To develop the ability of the farmer—

1. To raise vegetable crops economically.
2. To utilize approved cultural practices and machinery.
3. To produce vegetable crops in accordance with market demands.

B. References for this lesson—(see key list on pp. 20-23)

1. (A)—1
2. (B)—26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 47, 48, 49, 50, 51, 53
3. (C)—23

C. Suggested problems for study and discussion—

1. Cultural practices in general. A-1, pp. 133-142
   a. Necessity of weed control
   b. Effects of loosening the soil
   c. Time and frequency of cultivation
   d. Depth of cultivation
   e. Level tillage and hilling
   f. Efficiency in cultivation
   g. Implements and tools used in cultivating
      (1) Cultivator attachments
   h. Hoeing and weeding
   i. Thinning
   j. Mulching to control weeds
   k. Special practices for weed control
2. Irrigation is a necessity among market gardeners. A-1, Ch. 9
3. Cultural practices for specific crops
   a. Growing cole crops. A-1, Ch. 13
      (1) Cabbage. B-26; B-27; B-53
   b. Growing salad crops. A-1, Ch. 14
      (1) Celery. B-28; B-29; B-30
      (2) Lettuce. B-31

c. Growing tomatoes, peppers and eggplant. A-1, Ch. 15
   (1) Tomatoes. B-32; B-33
   (2) Peppers. B-48
   (3) Eggplant. B-47

d. Growing bulb crops. A-1, Ch. 16
   (1) Onions. B-34

e. Growing greens. A-1. Ch. 1 7
   (1) Spinach. B-35

f. Growing root vegetables. A-1, Ch. 18
   (1) Carrots. B-36
   (2) Beets. B-37

g. Growing perennial vegetable crops. A-1, Ch. 19
   (1) Asparagus. B-38; B-39; B-40; B-41
   (2) Rhubarb. B-42; B-39

h. Growing peas and beans. A-1, Ch. 20
   (1) Peas. B-43

i. Growing potatoes. A-1, Ch. 21; B-44

j. Growing sweet corn. A-1, Ch. 22; B-49

k. Growing cucurbits. A-1, Ch. 23; B-50; B-51

JOB 9. HARVESTING, GRADING, AND PACKING VEGETABLES

A. Teaching aims—To develop the ability of the farmer—
   1. To harvest vegetable crops for maximum yields of high quality produce.
   2. To use approved harvesting methods and equipment economically.

B. References for this lesson—(see key list on pp. 20-23)
   1. (A)—1, 6
   2. (B)—26, 28, 29, 31, 32, 34, 35, 36, 37, 38, 39, 42, 43, 44, 47, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 60, 65, 67, 70
   3. (C)—

C. Suggested problems for study and discussion—
   1. Harvesting and general preparation for market. A-1, pp. 183-190
      a. Timeliness in harvesting is important
      b. Organization in the field is essential
      c. Packing in the field is frequently satisfactory and economical
      d. Desirable facilities for packing must be provided
      e. Washing equipment should be given special consideration
      f. Washing and tying vegetables are important procedures
   2. Careful grading of vegetables is imperative. B-54; B-65; A-6, Ch. 4
   3. Precooling is standard practice in the preparation of many vegetables for market
   4. Packing for market. A-1, pp. 190-194; B-54; B-65; B-55; B-56; A-6, Ch. 4
      a. Ice and paper are effective means of conserving quality and preserving condition
      b. Waxing is gaining in importance. B-67
      c. Packages must be carefully considered. B-55, p. 16
         (1) Most advantageous size
         (2) Good appearance
         (3) Secure carrier
         (4) Adaptation to the crop and season
         (5) Convenient
         (6) Cost
         (7) Demands of the market

d. Pack vegetables according to—
   (1) Appearance. B-55, p. 12
   (2) Honest packing
   (3) Avoidance of bruising and disarrangement
e. Consider the variations in the usual weights for packing in different markets

5. Harvesting, packing, and grading specific vegetable crops
a. Cole crops. B-26; B-57; B-53; A-1, Ch. 13
b. Salad crops. B-28; B-29; B-31; B-58; A-1, Ch. 14
c. Tomatoes, peppers, and eggplant. B-32; B-48; B-47; A-1, Ch. 15
d. Bulb crops. B-34; B-59; A-1, Ch. 16
e. Greens. B-35; A-1, Ch. 17
f. Root vegetables. B-36; B-37; B-60; A-1, Ch. 18
g. Perennial vegetable. B-38; B-39; B-42; A-1, Ch. 19
h. Peas and beans. B-43; A-1, Ch. 20
i. Potatoes. B-44; A-1, Ch. 21; B-70
j. Sweet corn. B-49; A-1, Ch. 22
k. Cucurbits. B-50; B-51; A-1, Ch. 23

JOB 10. MARKETING AND STORING VEGETABLES COMMERCIALLY

A. Teaching aims—To develop the ability of the farmer—
   1. To market vegetable crops in accordance with grades and market demands.
   2. To store vegetable crops for a maximum quality product when placed on the market.

B. References for this lesson—(see key list on pp. 20-23)
   1. (A)—1, 6
   2. (B)—26, 28, 29, 31, 32, 34, 35, 36, 37, 38, 39, 42, 44, 47, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 72, 73, 74
   3. (C)

C. Suggested problems for study and discussion—
   1. Selling vegetables in general. A-1, pp. 196-203; B-55; B-56; A-6, Ch. 6
      a. The growers responsibility
      b. Sales outlets
         (1) Commission merchants
         (2) Wholesale
         (3) Roadside
         (4) Cooperative
      c. Advertising. A-6, Ch. 9
      d. Sales management. B-55, p. 20
   2. Transportation is an important step in marketing. A-1, pp. 194-196; B-56
      a. Motor trucks
      b. Railway
         (1) Number of packages per carload
      c. Boat
   3. Marketing specific vegetable crops. A-1, pp. 196-203; A-6, Ch. 6; B-54; B-65; B-55; B-56
      a. Cole crops. B-26; B-57; B-53; A-1, Ch. 13
      b. Salad crops. B-28; B-29; B-31; B-58; A-1, Ch. 14
      c. Tomatoes, peppers, and eggplant. B-32; B-48; B-47; A-1, Ch. 15
      d. Bulb crops. B-34; B-59; A-1, Ch. 16
      e. Greens. B-35; A-1, Ch. 17
      f. Root vegetables. B-36; B-37; B-60; A-1, Ch. 18
      g. Perennial vegetables. B-38; B-39; B-42; A-1, Ch. 19
      h. Peas and beans. A-1, Ch. 20
      i. Potatoes. B-44; A-1, Ch. 21

j. Sweet corn. B-49; A-1, Ch. 22
k. Cucurbits. B-50; B-51; A-1, Ch. 23

4. Storing vegetable crops in general. B-66
   a. The necessity and the desirability of storage are important considerations. A-1, p. 204
   b. Temperature, humidity, and ventilation are important factors. A-1, pp. 204-206
   c. Condition of the crop is important as a storage factor. A-1, p. 206
   d. Types of storages include earth or pit, common or air cooled, and refrigerated. A-1, Ch. 12; B-61; B-62
      (1) House cellar
      (2) Pits, mounds, and trenches
      (3) Cold frames
      (4) Bank storage cellars
      (5) Common storage houses
      (6) Cold storage
5. Storing specific vegetable crops. B-61; B-66
   a. Cole crops. A-1, Ch. 13; B-26; B-53
   b. Salad crops. A-1, Ch. 14; B-28; B-29
   c. Tomatoes, peppers, and eggplant. A-1, Ch. 15; B-47; B-48
   d. Bulb crops. A-1, Ch. 16; B-34
   e. Greens. A-1, Ch. 17
   f. Root vegetables. A-1, Ch. 18; B-36; B-37
   g. Perennial vegetables. A-1, Ch. 19
   h. Peas and beans. A-1, Ch. 20
   i. Potatoes. A-1, Ch. 21; B-44
   j. Sweet corn. A-1, Ch. 22
   k. Cucurbits. A-1, Ch. 23, B-50
6. Locker freezing of vegetables is practical. B-63; B-64, B-72; B-73; B-74
   a. Vegetable crops suitable for freezing. B-64, p. 6
      (1) Recommended varieties. B-63, p. 7
   b. Maturity of produce is important. B-64, p. 7
   c. Careful handling of produce prior to freezing is essential. B-64, p. 7; B-63, p. 2
   d. Steps necessary in preparing vegetables for freezing. B-64, pp. 7-9; B-63, pp. 5-7
   e. Proper containers must be used. B-64, p. 9; B-63, p. 3
   f. Freezing and storage are important considerations. B-64, p. 10; B-63, p. 8
   g. Special care of frozen goods when removed from the locker is imperative. B-64, p. 11
7. Storing vegetable seeds. B-68

IV. SUGGESTED REFERENCE MATERIAL

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Visual Aids (C)

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5. Vegetable variety specimens.
6. Germination equipment—rag doll, dirt or sawdust testers.
7. Samples of lime and fertilizers.
8. Lime Need of Soils—Eastern Half of U. S., Chart, Nat'l Lime Asso., Washington, D. C.
9. Sampling and Testing The Soil, Chart, Nat'l Lime Asso., Washington, D. C.
10. pH and Its Application, Chart, Nat'l Lime Asso., Wash., D. C.
11. Liming Truck Crops, Chart, Nat'l Lime Asso., Wash., D. C.
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13. Save and Reinforce Manure, Chart 5. The Nat'l Fert. Asso., Wash., D. C.
14. Samples of spray and dust materials.
15. Samples of seed testers and seed testing materials.
16. Samples and illustrations of sprayers and dusters.
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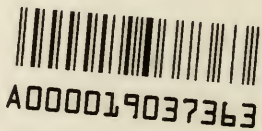
21. Posters 16 to 24 of Tomato Diseases, U.S.D.A.
22. Posters 25, 26, 54 and 58 of Pepper, Eggplant, Radish and Turnip, and Squash Diseases, U.S.D.A.
23. Samples and illustrations of tillage equipment

V. SUGGESTED APPROVED PRACTICES WHICH SHOULD DEVELOP FROM THE COURSE

1. Increase production of commercial vegetable crops.
2. Choose adapted varieties of vegetables for individual farming situations.
3. Adapt vegetable crops for market to the usual crop rotation advantageously.
4. Utilize the soils that are suitable to commercial vegetable production.
5. Maintain and economically increase the organic content of soils for vegetable production.
6. Use available fertilizers for vegetable crops as effectively as possible.
7. Purchase vegetable seeds and plants of kinds and varieties adapted to local conditions.
8. Purchase vegetable seeds and plants from reliable sources.
9. Have strong, healthy seedlings ready for early transplanting.
10. Transplant vegetable seedlings into cold frames or beds for maximum strength and production.
11. Plant vegetable seeds and plants in the field in accordance with sound practices.
12. Control insects of vegetable crops effectively.
13. Control diseases of vegetable crops effectively.
14. Follow the cultural practices recommended for the different vegetables.
15. Harvest vegetable crops in accordance with recommended practices for maximum yield and quality.
16. Grade and pack vegetables in accordance with market demands.
17. Store vegetables for a maximum quality product when placed on the market.
18. Recognize trends and demands of market and sell vegetables to best advantage.



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